

DocId: 3827260

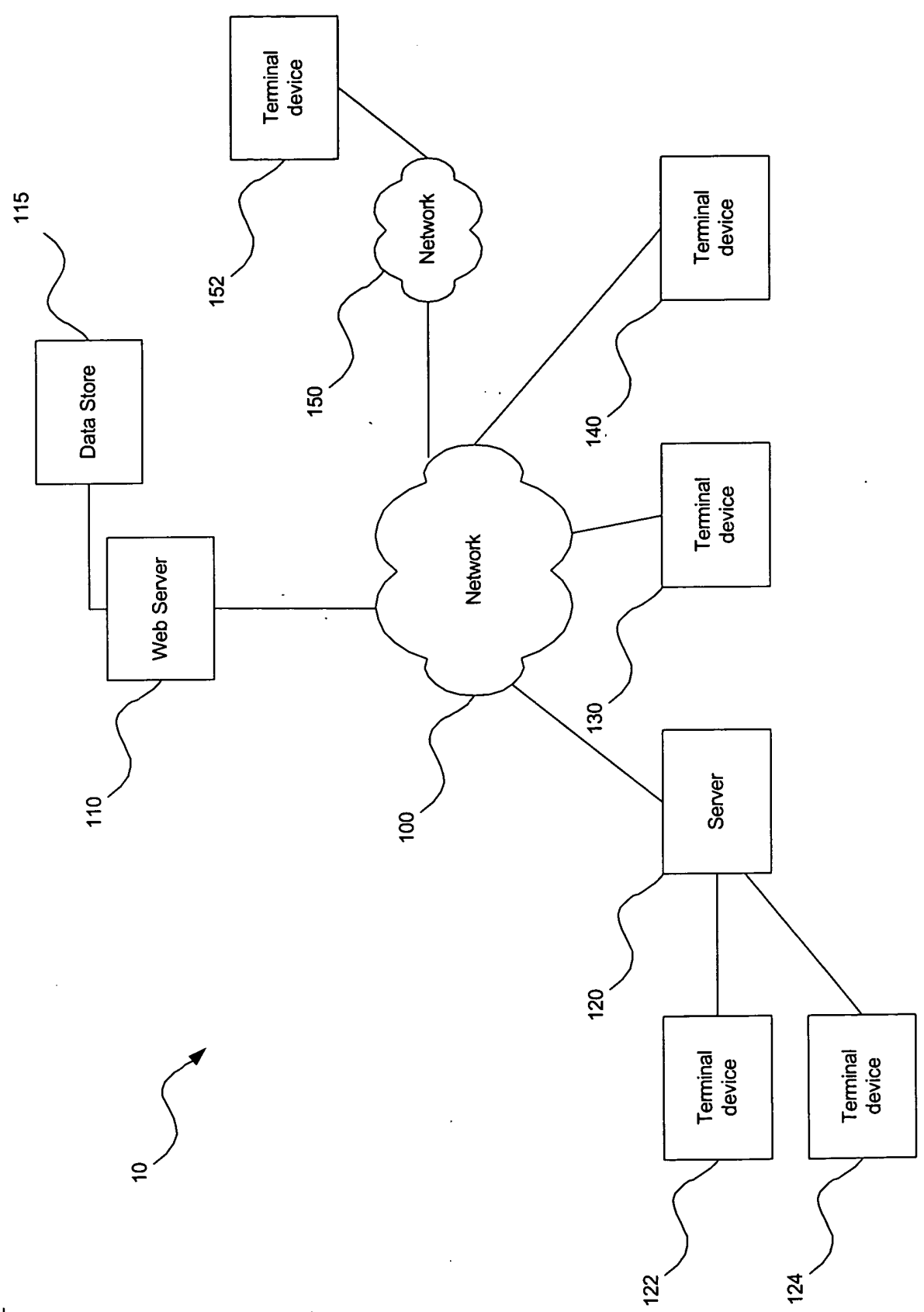


FIG. 1

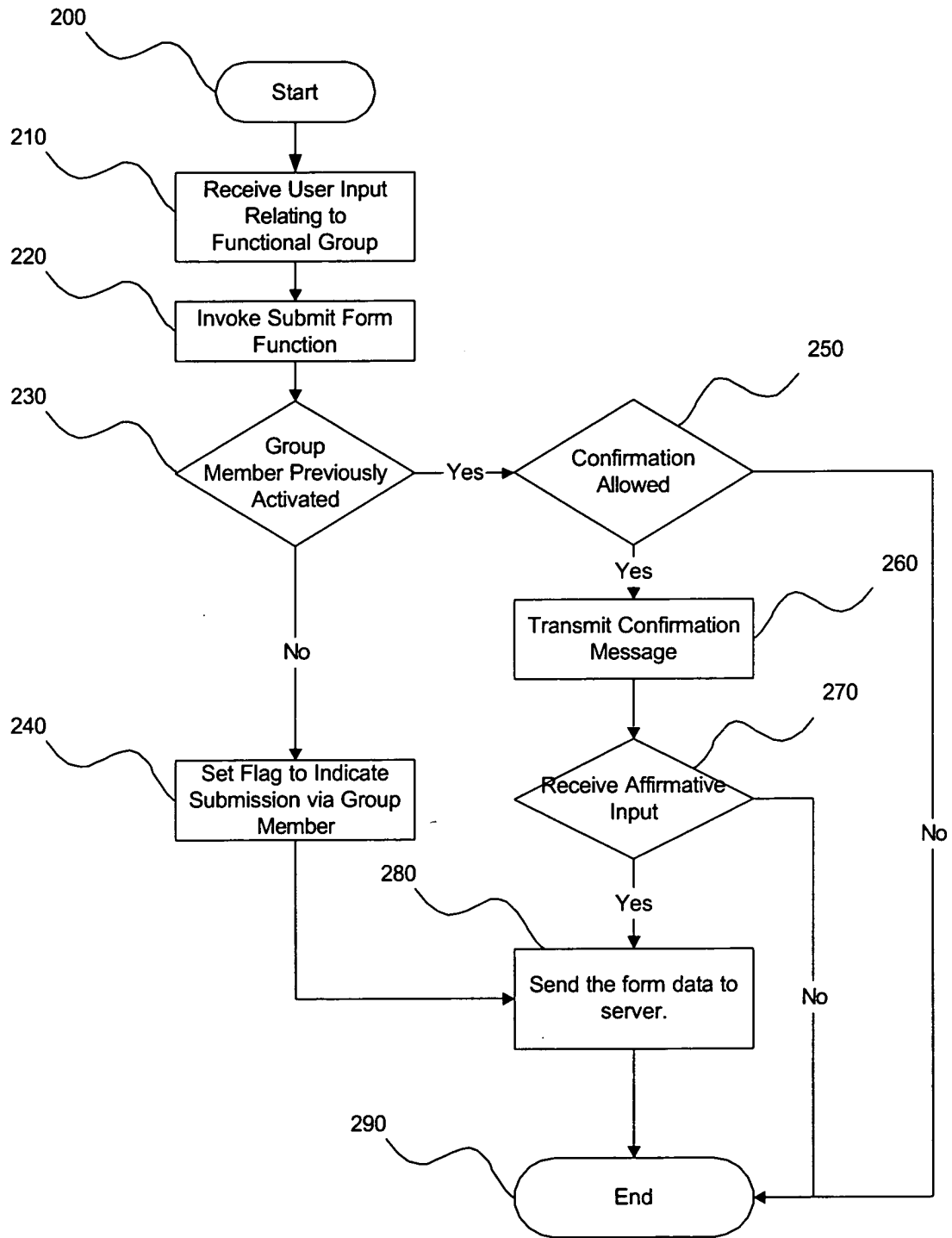


FIG. 2

$\frac{d^2 \rho}{dt^2} = -\frac{\partial V}{\partial x}$

```

/*=====
PageHistory methods

Description:
5      definition of the PageHistory methods

===== */
function PageHistory_setPageFlag(name, flag) {
10      //variable used in the cookie: literal string with ' to escape the potential : inside of name
      var namelit = "" + name + "";
      //set it in the cookie string
      //case in it is in pages already, then modify value in cookie
      if (!this.isNotInHistory(name)) {
15          var repl = new RegExp(namelit + ":" + "[^\\s]*\\s");
          debug(GenDebug, "this.cookie before", this.cookie);
          debug(GenDebug, "repl", repl);
          this.cookie = this.cookie.replace(repl, namelit + ":" + flag + " ");
          debug(GenDebug, "this.cookie after", this.cookie);
      }
20      else {
          //case cookie empty, create it
          if (this.cookie == "") {
              this.cookie = "{ " + namelit + ":" + flag + " }";
          }
          //else add it to the beginning
          else {
25              this.cookie = "{ " + namelit + ":" + flag + " , " + this.cookie.substr(1);
          }
          this.size++;
          debug(GenDebug, "this.size", this.size);
          //case size > maxsize, remove lru = end
          if (this.size > this.maxsize) {
30              debug(GenDebug, "this.cookie before size restraint", this.cookie);
              this.cookie = this.cookie.slice(0, this.cookie.lastIndexOf(",") + 1);
              debug(GenDebug, "this.cookie after size restraint", this.cookie);
          }
      }
35      debug(GenDebug, "this.cookie end", this.cookie);
      //set it in the hashtable
      this.pages[name] = flag;
      //set the cookie
      setCookie("pageh", this.cookie);
40  }

45  function PageHistory_getPageFlag(name) {
      if (IsDef(this.pages[name])) return this.pages[name];
  }
  function PageHistory_isNotInHistory(name) {
      if (IsUndef(this.pages[name])) return true;
50      return false;
  }

/*=====
PageHistory()

55      Description:

```

FIG. 4

definition of the PageHistory constructor

The PageHistory object stores a mru/lru (most and least recently used) list of size
maxSize pages for which you submitted a form

When you add a page and the list is full we discard lru and add it as mru

Pages are characterized by a guid and a flag

The flag indicates if the page has already been submitted

This object has some methods that lets you add a page, update a flag for a page
and get a flag from a page.

```
===== */
//no need to use prototypes since we use only one instance of the object
function PageHistory(maxsize) {
    //define the member variables
    this.maxsize = maxsize;
    this.size = 0;
    //we store a js expression defining an associative array in the cookie
    //we instantiate the array for quick lookups in the js object pages
    //we keep the cookie to manage the lru/mru for serialization
    //this makes the whole thing much faster: remove beginning and add to the end are very easy ops
    on strings
    //and we don't have to loop to serialize/deserialize
    this.cookie = getCookie("pageh");
    debug(GenDebug, "this.cookie", this.cookie);
    if (this.cookie == "") {
        this.pages = new Object();
    }
    else {
        this.pages = eval("bozo = " + this.cookie);
        this.size = this.cookie.split(',').length;
        debug(GenDebug, "this.size", this.size);
    }
    //define the methods
    this.setPageFlag = PageHistory_setPageFlag;
    this.getPageFlag = PageHistory_getPageFlag;
    this.isNotInHistory = PageHistory_isNotInHistory;
    debug(GenDebug, "pages", dumpObject(this.pages));
}

var pageHistory = new PageHistory(20);
```

FIG. 4

```

/*=====
    allowSubmit(name)

    Description:
5      checks if a page is allowed to be submitted. If it is allowed to do so, returns true and sets its
flag to 0 so that it won't be allowed again.
        to be called on a onSubmit handler

===== */
10  function allowSubmit(name, confirmFlag) {
    uKey = pageHistory.getPageFlag(name)
    debug(GenDebug, "uKey", uKey);
    if (uKey == "1") {
15      pageHistory.setPageFlag(name, "0");
        return true;
    } else {
        if (confirmFlag) {
            return confirm("This form has previously been submitted. Submitting again may result in an
error. Do you want to submit?");
20      } else {
            alert("This Form has previously been submitted. It cannot be submitted again.");
            return false;
        }
    }
25 }

/*=====
    putPageInHistory(name)

    Description:
30      puts a page in history if it is not there, with a flag allowing it to be submitted.
        To be called at the beginning of your page

===== */
35  function putPageInHistory(name) {
    debug(GenDebug, "pageHistory.isNotInHistory(name)", pageHistory.isNotInHistory(name));
    if (pageHistory.isNotInHistory(name)) {
        pageHistory.setPageFlag(name, "1");
    }
40 }

function dumpObject(obj) {
    var dump = "";
    for (var i in obj) dump += i + "=" + obj[i] + "\n";
45  return dump;
}

```

FIG. 4

```

/*=====
    getObject()

    Description: convert object name string or object reference into a valid object reference
    for both browsers: this is a reference on which you can set some style attributes
===== */
function getObject(obj) {
    var theObj;
    if (typeof obj == "string") {
        var iniObj;
        if (isNav6) {
            iniObj = document.getElementById(obj);
        }
        else {
            iniObj = eval("document." + coll + obj);
        }

        if (isUndef(iniObj)) {
            return "undefined";
        }

        if (isNav4) {
            return iniObj;
        }
        else {
            // in the IE or NS6 case the iniObj.style object may be undefined
            if (isDef(iniObj.style)) {
                return iniObj.style;
            }
            else {
                return "undefined";
            }
        }
    }
    else {
        theObj = obj;
    }
    return theObj;
}

```

FIG. 4

```

/*=====
  getObjectRef()

  Description: convert object name string or object reference into a valid object reference
  for both browsers, without the style in IE: this is the real object reference
  this function is adapted from Danny Goodman's "Dynamic Html : The Definitive Reference"
  http://www.amazon.com/exec/obidos/ASIN/1565924940/qid%3D963012863/002-0174003-
  8509633

```

```

===== */
function getObjectRef(obj) { //alert("getRef "+obj);

    var theObj;
    if (typeof obj == "string") {
        var iniObj = eval("document." + coll + obj);
        //alert("getRef "+iniObj);
        if (IsUndef(iniObj)) {
            return "undefined1";
        }
        return iniObj;

    }
    else {
        theObj = obj;
    }
    return theObj;
}

```

FIG. 4


```

5  /* =====
   FUNCTION:   IsUndef

   INPUT:      val - the value to be tested

   RETURN:      true, if the value is undefined
                false, otherwise.

   PLATFORMS:  Netscape Navigator 3.01 and higher,
                Microsoft Internet Explorer 3.02 and higher,
                Netscape Enterprise Server 3.0,
                Microsoft IIS/ASP 3.0.
   ===== */

15  function IsUndef( val ) {
        var isValid = false;
        if (val+"" == "undefined")
            isValid = true;

        return isValid;
20  } // end IsUndef

   function IsDef( val ) {
        return !IsUndef(val);
   } // end IsUndef

25  /**
   * <pre>
   * This function
   *     checks if the form is allowed to be submitted.
   *     if yes, it sets the action, then calls form.submit()
   *
   * Usage:
   *
   * <code>
35  *     <a href="Javascript:submitForm('/iMM/somefile.jsp', 'myForm', 'someUniqueKey', true)">
   * </code>
   * </pre>
   */

40  function submitForm(action, formName, key, confirmFlag) {
        //we put a provision here to let the users of this function not provide the last argument, which the
        //defaults to true
        if (IsUndef(confirmFlag)) {
            confirmFlag = true;
45         }
        if (allowSubmit(key, confirmFlag)) {
            debug(GenDebug, "formName", formName);
            eval("document." + formName + ".action=\"\" + action + \"\"");
            eval("document." + formName + ".submit()");
50         }
    }

```

FIG. 4